

2. Carbon arc and quartz lamp cover practically the same field of clinical indications and, with a very few exceptions, can be substituted one for the other.

3. Carbon arc is to be preferred in dermatoses with a systemic background.

4. Carbon arc presents several practical and technical advantages over quartz lamp.

5. Carbon arc is a therapeutic agency of equal value with quartz lamp, and is undeservedly neglected and ignored by dermatologists.

1930 Wilshire Boulevard.

DISCUSSION

H. P. JACOBSON, M. D. (1016 South Alvarado Street, Los Angeles).—I am very glad of the opportunity to discuss this timely paper because of the importance of the subject-matter which it treats. There is no denying the fact that heliotherapy is beginning to occupy quite a respectable position in medical therapeutics, and in the field of dermatology it is undoubtedly gaining in favor from day to day. As a consequence of the favorable accord which this method of therapy is receiving, new generating instruments are constantly being produced by different manufacturers with a view to facilitating their operation and otherwise adding to their therapeutic usefulness. And, as might be expected, the varying modalities produced by the different manufacturers have each their enthusiastic supporters as well as critics, with opinions differing and based upon individual clinical experience. These differences of opinions are, of course, due to the fact that most of the information on heliotherapy at our disposal is mainly empirical and lacks scientific corroboration. Because of that fact clinicians have varying views on the subject and favor different types of modalities for the treatment of similar conditions. In this particular instance Doctor Scholtz is trying to make a case for the carbon arc light which, after a certain clinical trial, has impressed him with a greater degree of merit than the mercury quartz arc.

The mercury quartz arc, as is well known, generates rays of the violet and ultra-violet ends of the spectrum while the carbon arc burner generates, in addition to these, rays belonging to the visible end as well as the invisible infra-red end of the spectrum. Without attempting any lengthy discussion of the physics of these respective rays, it might be said here that the component rays of the mercury quartz arc are comparatively nonpenetrating and their favorable actinic action is accomplished largely through the vasomotor system by means of the sensory nerve endings which reach the granular layer of the epidermis, and not through any direct action upon the capillaries which lie underneath the epidermic layers and, therefore, are not reached by the rays of the ultra-violet end of the spectrum. On the other hand, the carbon arc burner generates, in addition to the nonpenetrating ultra-violet rays, deeply penetrating short infra-red rays which, while characterized by some as mainly heat rays, are considered by other authorities of actinic importance and capable of being transformed into definitely useful electrochemical energy of biological value to the tissues. Again, on account of the red and infra-red rays in the carbon arc spectrum the patients may receive the benefit of larger doses of ultra-violet rays without any resulting erythema because of the admitted erythema allaying properties of the red and infra-red end of the spectrum.

Thus, I whole-heartedly agree with Doctor Scholtz in his favorable attitude toward the carbon arc lamp, though I feel compelled to take exception to his recommendation to employ heliotherapeutic methods in the treatment of such conditions as lupus erythematosus. His main thesis is certainly timely and correct, and I am glad of the opportunity to record my attitude.

C. R. HALLORAN, M. D. (1052 West Sixth Street, Los Angeles).—All artificial light contains ultra-violet radiation in varying amounts. The sun's ultra-violet rays are intense from 397 to 340 μ , and less intense from 340 to 291 μ . Carbon arc lamps give strong rays from 397 to 330 μ , and weak from 300 to 200 μ . Mercury arc quartz lamps give powerful ultra-violet rays from 397 to 300 μ , and strong to 230 μ , and weak to 185 μ .

In the solar spectrum the ultra-violet waves are the shorter wave lengths, and at the other end of the spectrum are the longer heat waves with the light waves intervening.

Since it is the ultra-violet rays of the spectrum that induce the most active chemical change, and we are able to obtain these rays with the mercury arc quartz lamps with greater exclusion of the less beneficial and occasionally harmful rays of the solar spectrum, I fail to see why the carbon arc lamp should be selected as the means of procuring them.

The use of the mercury arc quartz lamps in the treatment of certain selected dermatoses has definitely proved of value. But the methods of application are varied, as are also the results obtained by their application.

The spectrum of the carbon arc lamp more closely simulates the solar spectrum, and their effects are also more similar. But solar rays alone have not proved beneficial in the treatment of any known dermatoses.

A few years hence we will possibly see a great deal of pathology resulting from the present popularity of artificial tanning of the skin.

I cannot share Doctor Scholtz's enthusiasm for the use of the carbon arc lamp as a therapeutic agent in the treatment of diseases of the skin.

DESMOID TUMORS*

REPORT OF CASE

By GEORGE F. STRAUB, M. D.
Honolulu, T. H.

THE term "desmoid tumors" as coined by Saenger characterizes a group of rather rare tumors, chiefly occurring in the abdominal wall, which have their origin in the tendinous structures, the aponeuroses or the inscriptions tendineae of the abdominal muscles. Muscular elements are entirely absent. In the state of more intensive growth these tumors assume the macroscopic appearance of sarcoma, without, however, histologically becoming of a sarcomatous nature. This fact has led various observers in the past to the erroneous assumption that they were dealing with true sarcomata. According to their appearance they were termed fibro-, myxo-, or cysto-sarcoma. While it is true that such tumors at any time may assume truly malignant characteristics, it is equally true that their primary histologic picture has nothing whatsoever to do with sarcoma, and that their origin can be definitely traced back to the normal elements of the aponeurotic fiber.

In passing it may be mentioned that Guyon has pointed to the occurrence of similar neoplasms having their origin from the tendinous structures of the neck. Steintal¹ cites the simultaneous removal of three such growths from the abdominal wall, the neck and the lumbar region, respectively, in one and the same patient. All three showed the same histologic structure.

* From The Clinic, Honolulu.

MACROSCOPIC AND MICROSCOPIC CHARACTERS

The macroscopic appearance of the desmoid tumor is rather characteristic, insofar as, even in its later stages and after partial degeneration has occurred, we may still recognize its derivation from the tendinous mother tissue by the arrangement of the fibrous tracts. These elements are always much in evidence. In some places they cross each other at acute angles, while in other more vascular regions they are arranged in circular fashion around blood vessels or inflammatory tissue. This distribution in many cases, especially in tumors which have advanced to larger size and those which have undergone secondary inflammatory reactions, gives rise to a definitely nodular, knobby aspect of the growth. According to the time of its existence the desmoid tumor varies in size from a small nodule to the size of a head. The consistency is hard and elastic. It offers a peculiar grinding sensation to the cutting edge of the knife. The cut surface shows a peculiar damasklike sheen. In all other respects its appearance is more or less determined by its location. The extent and polar arrangement is influenced by the structure from which it arises. It generally follows the course of the fascia from which it originates. Desmoids of the median region of the abdomen are as a rule parallel to the long axis of the body, those of the lower lateral abdomen oblique, and those on the side and farther back, transverse. Superficially located tumors result in circulatory disturbances, enlargement of veins and in the course of time in atrophy of the overlying skin even to the point of necrosis, secondary inflammation and ulceration. Deeply situated neoplasms displace or may, by simple mechanical invasion, give rise to destruction of surrounding muscles and other structures.

The microscopic picture—at least in the beginning—is that of a rather hard oligocystic, more or less vascular tumor consisting chiefly of connective tissue of the highly specialized aponeurotic type. The adventitia of the vessels shows direct continuity with the tumor proper which accounts for their inability to collapse and

the tendency to profuse hemorrhage subsequent to incision into the growth. As the neoplasm gains larger dimensions, the various forms of degeneration put in their appearance. This may be succeeded by the formation of cysts containing serous or mucoid material. The breaking of the overlying skin may result in infection with the usual picture—the mobilization of histocytes, leukocytes, and lymphocytes. This is the picture which has caused a number of observers to confuse this type of tumor with malignant neoplasms, particularly sarcoma. Of course, one cannot overlook the fact that a number of cases have been reported which finally did develop malignant characteristics. This, however, was always a secondary occurrence. If connective tissue is at all capable of anaplastic development into sarcoma, then in this case the resulting malignant neoplasm has the same relationship to the desmoid tumor as secondary carcinomata bear to verrucae or adenomata.

ETIOLOGY

Desmoid tumors of the abdominal wall are more frequent in women than in men. Of forty cases reported by Pfeifer,² eleven were men. Ledderhose's³ review of cases cites ninety women and only ten men. Of four cases observed by the author, three were women. Another significant fact is that of the female patients, by far the greater majority had gone through pregnancy and labor before the development of the neoplasm. This brings up the question of the etiology⁴ of these tumors. Although it seems quite reasonable to assume that the strain and possible trauma incident to parturition shares a part in the causation of such a neoplasm, close scrutiny of the cases by Saenger and Ledderhose has not brought



Fig. 1.—Desmoid tumor.

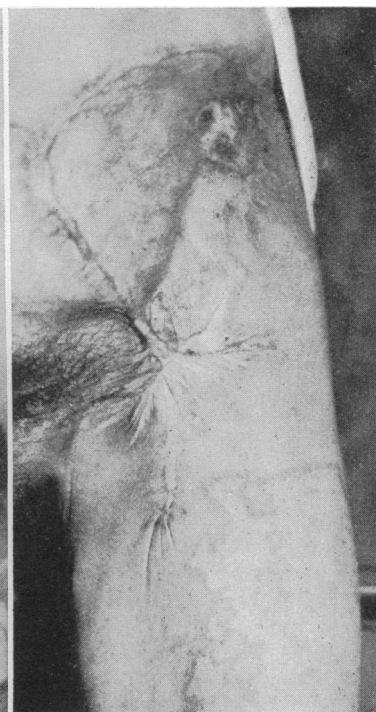


Fig. 2.—Keloid formation around scar.

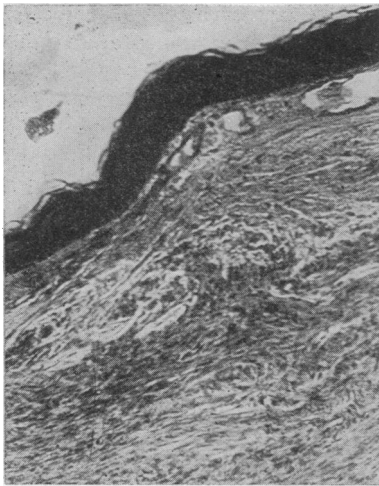


Fig. 3

Fig. 3.—An area from the surface of the tumor mass. The stratified epithelium was apparently stretched, very thin and of few cellular layers. The submucosa was scant, the intercellular substance predominating. There was no distinct border of neoplastic tissue. The neoplastic tissue itself, in this area, consists of rather ripe connective tissue cells with an abundance of intercellular substance, enlarged.

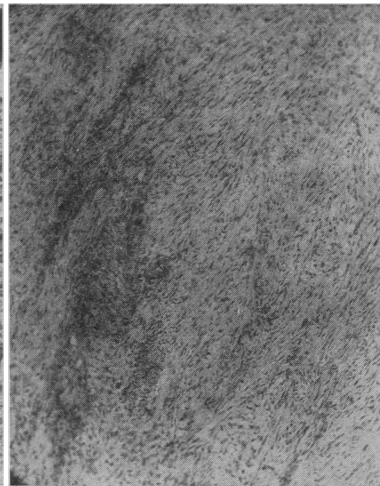


Fig. 4

Fig. 4.—The bulk of the tumor—at least 85 to 90 per cent—was made up of spindle-shaped, quite ripe fibrous tissue cells, the spaces between the cells being filled by a hyaline, myxomatous or mucinous material, with fine fibers. Fresh material, sectioned and stained by polychrome methylene blue, showed this to great advantage.

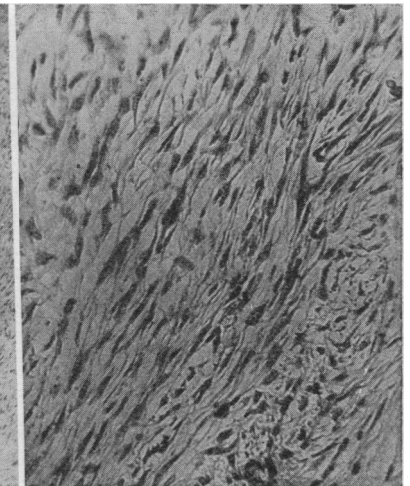


Fig. 5

Fixation in formalin served to so greatly contract the tissue, that the fixation fluid became quite mucinous. Even after fixation and dehydration, the permanent sections show the paucity of cells, their ripe character and the abundance of intercellular material, and especially the angles at which the fibroblasts and their terminal spindles cross each other in all directions, suggesting very broadly their mother tissue, aponeurotic connective tissue.

Fig. 5.—The character of these spindle cells, quite ripe, mature, with well-stained nuclei, nowhere showing mitoses, and the relative quantity of intercellular substance (even after shrinkage) is pictured, in a higher magnification.

to light convincing evidence that trauma is really the cause. The occurrence of desmoid tumors in children reviewed by Pfeifer and the observation of a congenital case in a child four years old by Coenen⁵ certainly do not tend toward substantiation of the traumatic etiology. In how far chronic trauma or irritation may be responsible for the formation of these peculiar neoplasms cannot be decided definitely at this time.

The cases which I have observed all had been well under way for from six months to three or four years before I saw them. The history in all of them showed a slow, gradual development starting from a small nodule in the lower half of the abdomen below the umbilical line somewhere more or less deep under the skin. The onset was so insidious that the exact time of the beginning could in no case be definitely determined and the growth, therefore, went unnoticed for quite a considerable time.

Pain was not a feature of the condition. Even the patient whose case is reported here did not complain much of anything but the discomfort caused by the size and weight of the tumor. It is a characteristic of this type of neoplasm that it does not lead to involvement of the regional lymph glands or metastases in distant organs, unless sarcomatous anaplasia occurs. However, the patients with large size tumors of long standing, as the one reported here, exhibit a decidedly toxic, not to say cachectic appearance.

The tumors observed were solitary, unilocular and well defined. They are most frequent in the oblique abdominal muscles; next in line follows the fascia transversalis and last the linea alba. As indicated above, their development is first slow. After the size of a hen's egg is reached,

the growth is generally accelerated, so that in from one to three years the volume of a man's head is attained. At times, however, the process of growth is much more protracted and extends over a long period of years. A number of cases have come under observation in which the development came to an apparent standstill with calcification of certain areas within the tumor. There is only one case on record, reported by Stubenrauch,⁶ which underwent spontaneous involution and recovery.

DIAGNOSIS

The diagnosis in cases of fairly superficial desmoids is not difficult, if one bears in mind the characteristic orientation which follows the line of the structure from which the neoplasm originates. In cases of more deeply situated tumors the differential diagnosis becomes more difficult. Still, if one succeeds in excluding intraperitoneal and retroperitoneal conditions (liver, spleen, kidneys, pelvic organs, intestinal tract) there remains very little pathology which could simulate the subject under consideration. The history will eliminate traumatic conditions involving the abdominal muscles, such as hemorrhagic cysts and inflammatory processes, which are generally accompanied by fever and sensitiveness on palpation. Fibromyoma of the round ligaments must be thought of and excluded. Thus there remain for consideration only two conditions: fibroma and sarcoma. But here as in many other surgical-pathological situations the biopsy is destined to make the final decision.

Increasing experience has taught us that the prognosis of these cases is good as far as the possibility of definite eradication of the tumor and

lasting result is concerned, this in direct contradistinction to the most benign form of sarcoma, if there is such a thing. In fact, in case of doubt a patient living and free from recurrence and metastasis after a fair interval of time is almost 100 per cent proof that the tumor removed was not sarcoma; this in spite of the diagnosis of malignancy by the most competent pathologist. One author reports local recurrences after a successful operation which, however, were definitely cured by a secondary excision. I have observed a decided tendency toward formation of keloids in three of my patients (desmoid tumor of scar tissue!).

TREATMENT

From the foregoing discussion it follows without argument that the early thorough radical removal of the neoplasm is the method indicated. As the operation, once begun, may terminate in through and through excision of the abdominal wall and laparotomy, the patient should be prepared for such an operation in any case.

REPORT OF CASE

Here follows the report of a case of desmoid tumor of the abdomen which is highly interesting in many respects, and which illustrates a number of points brought forward in the foregoing discussion:

Ch. S., laborer, admitted to the Queen's Hospital September 29, 1927, discharged October 21, 1927.

American-Hawaiian mixture; age 62, married, seven children and wife all well; moderate user of alcohol and tobacco; no gonorrhea or lues.

At the age of seven he fell from a tree and broke the left hip-bone. Otherwise he was always well.

In the middle of 1921 he fell from a bicycle and thinks he struck the left lower abdomen. In the beginning of 1922 he noticed a small nodule about the

size of a hazelnut under the skin of the left lower abdomen midway between the middle of Poupart's ligament and the umbilicus. The tumor grew very slowly and in the course of about one year reached the size of a walnut, and in another eighteen months that of an egg. In 1925 growth became accelerated, so that at the end of 1926 the size of a small head was attained. With this rapid growth there went along a change of the appearance of the tumor. Up to 1925 this had been smooth and was covered with normal movable skin, but then it assumed a lobulated aspect and its cutaneous covering became adherent, gradually thinner and followed the nodular contour of the underlying neoplasm. Finally, in the middle of 1927, the skin broke down in places and started to ulcerate, especially at the lower pole of the tumor. From that time on the patient, who had previously been only slightly inconvenienced by the size and weight of the growth, developed an increasing loss of strength, weight and appetite, and his appearance became that of a cachectic, seriously sick man. At the same time the tumor became increasingly painful, the patient started to cough a good deal, became short of breath on slight exertion, and a cataract developed on his right eye.

When I saw the man first (September 3) he made the impression of an individual suffering from cachexia. The tumor covered the left lower quadrant of the abdomen (Fig. 1) from the midline to the anterior axillary line and from somewhat above the umbilical level, extending to below Poupart's ligament. The neoplasm was the size of a small head, of nodular lobular appearance, quite vascular and showed various areas of ulceration, especially in the inguinal region. The longer axis followed the direction of the fibers of the external oblique muscle. The tumor was foul smelling, and discharging a sanguinopurulent secretion at the base. It appeared to be of fairly firm elastic consistency, was freely movable with the underlying tissue and the abdominal muscles, and did not seem to be connected with any intra-abdominal structures or the pelvic bones. There was no gross evidence of lymphatic or metastatic extension anywhere. Aside from the condition described, the examination of the entire abdomen was negative. Bowel function and stools were normal. There was no disturbance of urination. The examination of the chest,



Fig. 6

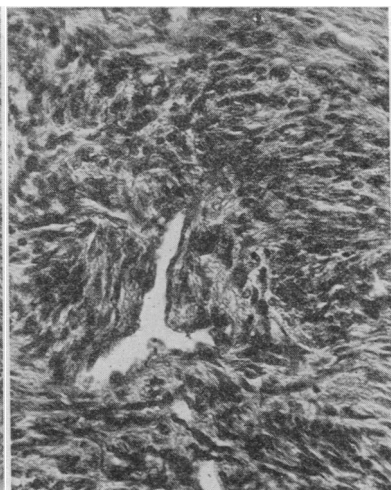


Fig. 7

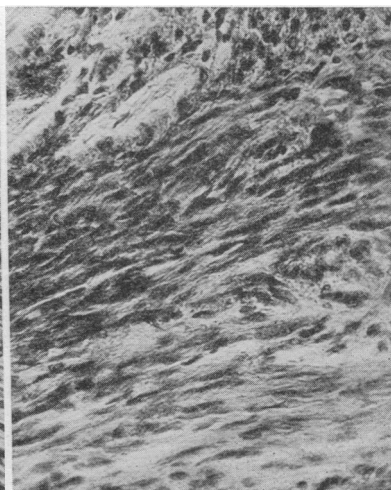


Fig. 8

Fig. 6.—Near the pedicle of the tumor, where the blood supply was quite profuse, and where long-standing infection had caused a reaction, the type of cells was somewhat different. In the infected areas, polymorphonuclear, mononuclear, and plasma cell infiltration clouded or obscured the picture. Adjacent to such areas, the cells of the neoplasm were more recent, younger, but quite ripe. Mitoses were very rare and irregular mitoses not found. The elongated cells were arranged in bundles of fibers, running in all directions, suggesting the familiar architecture of a fibroma of the uterus. The cells themselves varied only slightly in

size; a regularity that detracted from the first impression of sarcoma. The intercellular substance was quantitatively less prominent than in areas in the periphery of the tumor.

Fig. 7.—A blood vessel from near the pedicle of the tumor, with tumor cells, well nourished, young, but ripe, adjacent.

Fig. 8.—Section from near pedicle to show fibrillary character of intercellular substance, in contradistinction to its more myxomatous character in the periphery.

aside from universal low amphoric râles, did not show any abnormalities. The heart rate was 92. Heart borders, normal. Temperature, 98.6. Blood: hemoglobin, 65 per cent; red cells, 3,800,000; white cells, 8000; polymorphonuclears, 72; small lymphocytes, 26; large lymphocytes, 2; eosinophils, 0; Wassermann reaction negative; Kahn, negative. Stool: no occult blood. Urine: repeatedly negative. Fully developed cataract in the right eye, beginning cataract in the left eye.

A clinical diagnosis was made of desmoid tumor of the abdominal wall with possible secondary sarcomatous anaplasia. Operation was advised and the operative field was prepared for a few days by dakinization and application of potassium permanganate dressings.

On September 4 a biopsy was done by the resident hospital staff. The report from the frozen section was: "Many irregularly growing spindle cells loosely growing—sarcoma type [?]"

On September 9 the patient was operated on. The tumor was removed, the line of excision remaining within normal skin about one inch away from the growth all around. Then the tumor was peeled away from the abdominal muscles inclusive of the external fascia. The inguinal gland area was also excised, although no glands could be felt. No malignancy was apparently encountered anywhere in the line of dissection. A sliding skin flap from the thigh partly covered the wound leaving a raw area of 6 by 4 inches.

The tumor was the size of a coconut and was firmly attached to the fascia of the left external oblique muscle from which it seemed to take its origin. The growth and its attachment was very vascular. No enlarged glands were encountered.

Seven days after the operation, by order of an interne an x-ray treatment of three-fourths of an erythema dose was given with the result that the poorly nourished skin flap became necrotic to a considerable extent.

On October 3, about three weeks after the first operation, the remaining granulating area was covered with Thiersch grafts taken from the thigh. At the same time a few specimens were taken from the granulation tissue for microscopical examination which was negative as far as malignancy was concerned showing only granulation tissue. From then on the patient made an uninterrupted recovery, and up to the time of this report, ten months after operation (July 30, 1928), is entirely well.

I have previously drawn attention to the frequency of keloid formation in these cases. The patient under discussion also developed a number of keloids (Fig. 2) in and around the operative area, an especially large and dense one at the lower pole which necessitated simple cautery division on December 1, 1927, in order to relieve the pull it exerted in the inguinal region.

PATHOLOGICAL REPORT

The pathological report rendered by the hospital laboratory reads as follows:

"Tumor removed about the size of a coconut, irregular in contour. Specimen shows several different structures, was growing in globules. Some globules (1 to 2 inches in diameter) show a strikingly gelatinous structure, others white and fibrous. Microscopic diagnosis: Section 1 shows pale cells with many fibrils between. These cells have a gliomatous appearance growing irregularly. Section 2 shows a very compact cell mass, irregularly growing with deep staining nuclei. This specimen looks like a spindle cell sarcoma. Myxosarcoma 'desmoid.'"

An eastern pathologist to whom specimen slides were submitted pronounced the tumor fibromyxosarcoma.

COMMENT

In the light of the introductory discussion the diagnosis of the local laboratory, as well as of

the pathologist consulted, may be easily understood. But the fact remains that the tumor, in its clinical development, bears all the earmarks of the group "desmoid tumors," as defined by Saenger. Furthermore, the benign course after nearly a year does not speak for malignancy, and that after and in spite of what one cannot call a radical operation and the absence of treatment by radium and in spite of the above mentioned single dose of x-ray which one may look at as stimulating rather than lethal.

In order to complete the picture the writer is submitting photomicrographs and descriptions thereof from the laboratory of the clinic.

401 South Beretania Street.

REFERENCES

1. Steintal: Surgery of the Abdominal Wall, Handb. d. Prakt. Chirurgie Garré, Kuettner, Lexer, 1923.
2. Pfeifer: The Desmoids of the Abdominal Wall and Their Prognosis, v. Bruns' Beiträge, zur Klin. Chir., 1904, Vol. xlix.
3. Ledderhose: The Surgical Diseases of the Abdominal Wall, Deutsche Chirurgie, 1890, Vol. xiv b.
4. Kramer: Contributions to the Etiology and Operation of the Desmoid Tumors of the Abdominal Wall, Arch. f. klin. Chir., 1896, Vol. lii.
5. Coenen: Zentralbl. f. Chir., 1909, p. 124.
6. Stubenrauch: München Med. Wchnschr., 1910, p. 1473.

CALIFORNIA STATE NARCOTIC HOSPITAL*

ITS AIMS AND WORK

By THOMAS F. JOYCE, M. D.

Spadra

THE State of California, realizing its responsibility in the salvaging of the unfortunate victims of narcotic addiction, passed a bill more than a year ago creating the State Narcotic Hospital. This institution was started on property already owned by the state, known as the Pacific Lodge, and is situated about two miles from Spadra, in Los Angeles County, just west of the Valley Boulevard. The property consisted of eight hundred acres of land with one large stucco building capable of housing forty patients and a small personnel. The sum of \$100,000 was appropriated to make the necessary alterations, furnish the equipment, and pay all expenses for the first year. Permanent improvements in the nature of a new sewage disposal system, a new well for domestic service, a steam heating plant, and a modern hydrotherapy room were installed.

Recently a new dormitory building has been opened, housing fifty convalescent patients, and a modern steel fence surrounding five acres of the property adjoining these buildings has just been completed by which it is hoped to reduce the number of escapes from the institution to a minimum.

Next year's budget provides for the erection of an industrial building and gymnasium, where these men will be given instruction in a useful trade in order to provide a means of livelihood after they leave the institution. In the gym-

* Presented at a meeting of Social Service agencies.